DOCUMENT RESUME

ED 435 081 CG 029 550

AUTHOR	Hudson, Lisa; Hurst, David
TITLE	Students Who Prepare for College and a Vocation. Issue Brief.
INSTITUTION	National Center for Education Statistics (ED), Washington, DC.
REPORT NO	NCES-1999-072
PUB DATE	1999-08-00
NOTE	3p.
AVAILABLE FROM	NCES Publications, Tel: 877-433-7827 (Toll Free). For full text: <http://nces.ed.gov/>.
PUB TYPE	Numerical/Quantitative Data (110) -- Reports - Research (143)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	*Academic Achievement; Career Choice; *College Preparation; *Course Selection (Students); Curriculum; *Educational Opportunities; Employment Opportunities; *High School Students; High Schools; Higher Education; Vocational Aptitude; *Vocational Education; Vocational Evaluation
IDENTIFIERS	*Carl D Perkins Voc and Appl Techn Educ Act 1990

ABSTRACT

High schools have traditionally focused on preparing students for entry-level jobs or for postsecondary education. Recently, federal legislation (e.g., 1990 and 1998 Perkins Acts) has encouraged a more integrated approach for all students, one that maintains college entry as a viable option while also providing a stronger foundation in work skills and applications. The percentage of high school graduates who complete both a vocational concentration and a college preparatory curriculum is small, but it increased markedly between 1982 and 1994. This issue brief focuses on students who complete both a vocational and college preparatory curriculum, examining their vocational course taking, academic achievement in high school, and postsecondary participation. High school graduates with concentrations on vocational areas that use computers most extensively, such as business and technology/communications, generally were most likely to complete a college preparatory curriculum. The academic achievement gains and postsecondary participation rates of high school graduates who completed both a vocational concentration and a college preparatory curriculum were similar to those who completed a college preparatory curriculum only, and generally higher than students who completed a vocational concentration only. (Contains 3 tables, 1 figure, and 2 references.) (GCP)

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ISSUE BRIEF

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Students Who Prepare for College and a Vocation

August 1999

ED 435 081

High schools have traditionally focused on preparing students for entry-level jobs *or* for postsecondary education. Recently, federal legislation (e.g., 1990 and 1998 Perkins Acts) has encouraged a more integrated approach for all students, one that maintains college entry as a viable option while also providing a stronger foundation in work skills and applications. One group of students whose high school course of study may reflect these changes are those who complete both a vocational and a college preparatory curriculum. Currently, little is known about this small group of students. This issue brief focuses on these students, examining their vocational course taking, academic achievement in high school, and postsecondary participation.

Student participation in vocational education and a college preparatory curriculum

For this issue brief, public high school graduates were categorized into four curriculum groups: college preparatory only, vocational concentration only, both vocational concentration and college preparatory, and general preparation.[1] *College preparatory* graduates completed a course of study that was consistent with the prevailing entrance requirements at public four-year colleges.[2] *Vocational concentrators* completed three or more credits in a single occupational program area (such as business). Of particular interest for this issue brief are the students who met *both* the college preparatory and vocational concentrator criteria. *General* preparation students met neither the vocational nor the college preparatory requirements.

Between 1982 and 1994, there was an increase in the percentage of students completing a college preparatory curriculum and a decrease in the percentage completing a vocational concentration (table 1). Reflecting the general trend toward more college preparatory coursework, the percentage of graduates completing *both* a vocational concentration and a college preparatory curriculum increased from 0.6 percent in 1982 to 4.5 percent in 1994. Among college preparatory high school graduates, the percentage who also completed a vocational concentration increased from 7 percent in 1982 to 12 percent in 1994.

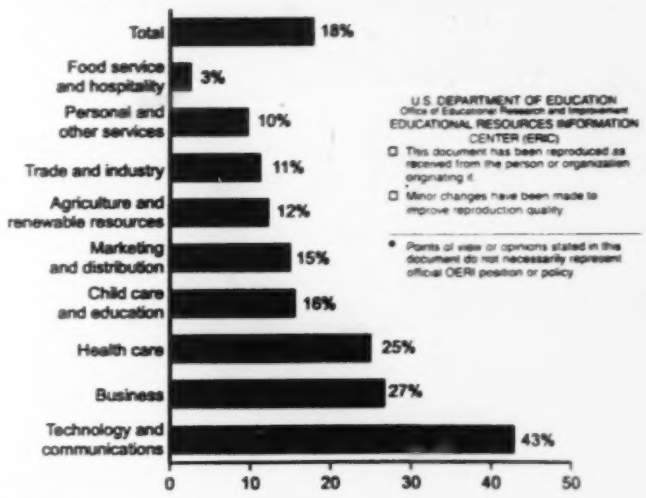
Table 1.—Percentage distribution of public high school graduates according to curriculum specialization in high school: 1982, 1990, and 1994

Curriculum specialization	1982	1990	1994
Total	**100.0**	**100.0**	**100.0**
College preparatory only	8.1	25.9	32.2
Vocational concentration only	33.1	25.0	20.9
Both vocational concentration and college preparatory	0.6	2.8	4.5
Other/general	58.2	46.3	42.4

SOURCE: U.S. Department of Education, National Center for Education Statistics. 1999. *Vocational Education in the United States: Toward the Year 2000*, NCES 1999-069. Washington, DC.

Among vocational concentrators, the percentage who also completed a college preparatory curriculum increased nine-fold, from 2 percent in 1982 to 18 percent in 1994 (not shown in a table). Within specific vocational areas, however, students were not equally likely to have completed a college preparatory curriculum. High school graduates who concentrated in food service and hospitality were less likely than the average vocational concentrator to have also completed a college preparatory curriculum, while students concentrating in technology and communications or in business were more likely than the average vocational concentrator to have also completed a college preparatory curriculum (figure 1). In fact, *43 percent* of the graduates who concentrated in technology and communications also completed a college preparatory curriculum.[3] We do not know enough about technology/communications and business programs to say what about them may particularly attract college-preparatory students. But we do know that these are the two vocational program areas in which computers are most extensively used (U.S. Department of Education 1994). This "high tech" focus could increase the appeal of these programs to a broader range of students.

Figure 1.—Percentage of public high school graduates with a vocational concentration who also completed a college preparatory curriculum, by vocational program area: 1994



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1994 National Assessment of Educational Progress High School Transcript Study.

Achievement test gains

Table 2 compares the test-score gains of students in the different curriculum groups. To partially control for differences in initial achievement levels, the test-score gains are grouped according to the students' 8th-grade test quartile.

[1] This analysis uses transcript data from the High School and Beyond Sophomore Cohort 1982 High School Transcript Study, the 1990 and 1994 National Assessment of Educational Progress High School Transcript Studies, and the National Education Longitudinal Study of 1988 High School Transcript Study. See U.S. Department of Education (1999) for a complete description of the data sources.

[2] This included 4 credits in English, 3 credits in mathematics at the algebra 1 level or higher, 2 credits in biology, chemistry, and/or physics, 2 credits in social studies with at least 1 credit in U.S. or World History, and 2 credits in a single foreign language.

[3] In the current NCES secondary school course taxonomy, all computer courses are classified as vocational within the technology and communications program area. In earlier taxonomies, computer classes taught in a mathematics department were classified as academic.

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Table 2.—Average test score gains between 8th and 12th grade in mathematics and reading for 1992 public high school graduates according to 8th-grade mathematics and reading test score quartiles, by curriculum specialization in high school

	Lowest quartile		Middle two quartiles		Highest quartile	
Curriculum specialization	Mathematics	Reading	Mathematics	Reading	Mathematics	Reading
Total	**20.8**	**16.6**	**25.1**	**19.5**	**29.2**	**23.0**
College preparatory only	27.6	19.9	29.2	21.9	30.5	24.4
Vocational concentration only	19.0	15.5	22.3	17.6	26.4	19.9
Both vocational concentration and college preparatory	—	19.9	27.4	20.5	29.8	23.6
Other/general	20.7	16.7	24.3	19.0	27.5	21.7

—Too few sample observations for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics. 1999. *Vocational Education in the United States: Toward the Year 2000*, NCES 1999-069. Washington, DC. The achievement tests were conducted as part of the National Education Longitudinal Study of 1988 (NELS).

The test-score gains for students who completed both a vocational concentration and a college preparatory curriculum were statistically indistinguishable from those who completed a college preparatory curriculum only, and these students generally out-performed their peers who focused on a vocational concentration only. For instance, among students whose 8th-grade mathematics scores were in the middle two quartiles, those who completed a vocational concentration and a college preparatory curriculum gained an average of 27 points on the mathematics test between 8th and 12th grade. Students completing the college preparatory curriculum only made similar gains (29 points), while the average academic gain of those who had a vocational concentration only was lower (22 points).

Postsecondary participation rates

High school graduates who complete both a vocational concentration and a college preparatory curriculum may do so in an effort to keep their education and employment options open. These students should be prepared to enter a job in the occupational field in which they took vocational courses or to enroll in a postsecondary institution. However, based on their enrollments two years after graduation, most of these students appear to be college-bound.

Among 1992 public high school graduates, those who completed a vocational concentration and a college preparatory curriculum were about as likely to have enrolled in a postsecondary institution by 1994 as their exclusively college preparatory peers (90 and 94 percent, respectively), and much more likely to do so than students who completed a vocational concentration only (52 percent) or who had a general education preparation (70 percent) (table 3).

Table 3.—Percentage of 1992 public high school graduates enrolled in a postsecondary institution by 1994, and of those enrolled, percentage distribution according to type of first institution, by curriculum specialization in high school

		Of those enrolled, type of first institution			
Curriculum specialization	Enrolled	Public 4-year	Private, not-for-profit 4-year	Public 2-year	Other*
Total	**74.3**	**41.0**	**17.5**	**35.5**	**6.1**
College preparatory only	93.6	53.8	26.7	17.3	2.1
Vocational concentration only	51.8	23.7	6.5	57.0	12.8
Both vocational concentration and college preparatory	89.9	57.1	15.5	23.7	3.6
Other/general	70.3	33.5	13.0	46.1	7.4

* Includes private, not-for-profit 2-year; public vocational-technical; and private, for-profit institutions.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics. 1999. *Vocational Education in the United States: Toward the Year 2000*, NCES 1999-069. Washington, DC.

The public 4-year enrollment rates of high school graduates who completed both a vocational concentration and a college preparatory curriculum were also similar to high school graduates who completed a college preparatory curriculum only (57 and 54 percent). These public 4-year enrollment rates were higher than those for students who completed a vocational concentration only (24 percent) or a general education preparation (34 percent). High school graduates who completed both a vocational concentration and a college preparatory curriculum were also about as likely as college preparatory-only graduates to enroll in a community college and were less likely to do so than students who completed a vocational concentration only or who had a general education preparation.

Conclusion

The percentage of high school graduates who complete *both* a vocational concentration and a college preparatory curriculum is small, but increased markedly between 1982 and 1994. High school graduates with concentrations in vocational areas that use computers most extensively, such as business and technology/communications, generally appeared to be the most likely to have also completed a college preparatory curriculum. The academic achievement gains and postsecondary participation rates of high school graduates who completed both a vocational concentration and a college preparatory curriculum were similar to those who completed a college preparatory curriculum only, and generally higher than students who completed a vocational concentration only.

While students who complete both a vocational concentration and a college preparatory curriculum tend to be college-bound, these findings suggest that they may increasingly find it useful to take courses in a vocational field. At the same time, other analyses have found that the academic course taking of all vocational concentrators has increased (U.S. Department of Education 1999). These course taking trends suggest that students are increasingly integrating vocational and academic learning at the course level, and that students in the high-tech fields of technology/communications and business are particularly likely to follow the broader course of study envisioned by recent federal legislation.

References:

U.S. Department of Education, Office of Educational Research and Improvement. 1994. *National Assessment of Vocational Education Final Report, Volume II: Participation in and Quality of Vocational Education*, Washington, DC, p. 93.

U.S. Department of Education, National Center for Education Statistics. 1999. *Vocational Education in the United States: Toward the Year 2000*, NCES 1999-069. Washington, DC.

Issue Briefs present information on education topics of current interest. All estimates shown are based on samples and are subject to sampling variability. All differences are statistically significant at the 0.05 level. In the design, conduct, and data processing of NCES surveys, efforts are made to minimize the effects of nonsampling errors, such as item nonresponse, measurement error, data processing error, or other systematic error.

This Issue Brief was prepared by Lisa Hudson (NCES) and David Hurst (ESSI). To obtain standard errors or definitions of terms for this Issue Brief, contact Lisa Hudson at NCES 202-219-1419. To order additional copies of this Issue Brief or other NCES publications, call 1-877-433-7827. NCES publications are available on the Internet at http://nces.ed.gov/.